

What is claimed is:

- 1 1. A dual-panel active matrix organic electroluminescent display, comprising:
  - 2 an organic electroluminescent display panel;
  - 3 an active matrix panel; and
  - 4 a conducting and adhesive material between said two panels.
- 1 2. The dual-panel active matrix organic electroluminescent display as claimed in claim  
2 1, said active matrix panel being a thin-film-transistor panel.
- 1 3. The dual-panel active matrix organic electroluminescent display as claimed in claim  
2 2, said active matrix panel being a polycrystalline-silicon or an amorphous-silicon  
3 thin-film-transistor panel.
- 1 4. The dual-panel active matrix organic electroluminescent display as claimed in claim  
2 2, wherein each single pixel on said thin-film-transistor panel has at least one scan  
3 bus line, at least one data bus line, an active matrix layout portion, and a contact  
4 region for adhering to and conducting with said organic electroluminescent display  
5 panel.
- 1 5. The dual-panel active matrix organic electroluminescent display as claimed in claim  
2 1, wherein said conducting and adhesive material is chosen from the group of an  
3 anisotropic conductive film, an anisotropic conductive adhesive, a conducting resin,  
4 an Ag epoxy, and a metal bump.
- 1 6. The dual-panel active matrix organic electroluminescent display as claimed in claim

1, wherein said conducting and adhesive material has resistance in a range between 0.1 and  $10^6$  ohms.

7. The dual-panel active matrix organic electroluminescent display as claimed in claim 1, wherein said organic electroluminescent display panel further comprising:

a transparent substrate having top and bottom surfaces;

a layer of transparent material deposited on the top surface of said transparent substrate;

a patterned organic electroluminescent film deposited on said layer of transparent material;

a cathode layer deposited on said patterned organic electroluminescent film; and

a passivation layer formed on said cathode layer for protecting said patterned organic electroluminescent film from being damaged by water and oxygen;

wherein an opening is formed on the top of said cathode layer as a contact window to said active matrix panel.

8. The dual-panel active matrix organic electroluminescent display as claimed in claim 7, said organic electroluminescent film being an electron hole transmission layer, a electron transmission layer, or an organic light layer.

9. A method for manufacturing a dual-panel active matrix organic electroluminescent display, comprising the steps of:

fabricating an organic electroluminescent display panel;

4 fabricating an active matrix panel;

5 disposing a conducting and adhesive material between said organic  
6 electroluminescent display panel and said active matrix panel; and

7 adhering and bonding said two panels together.

1 10. The method for manufacturing a dual-panel active matrix organic electroluminescent  
2 display as claimed in claim 9, said conducting and adhesive material being deposited  
3 on said active matrix panel to bond said two panels together with pixel-to-pixel  
4 alignment.

1 11. The method for manufacturing a dual-panel active matrix organic electroluminescent  
2 display as claimed in claim 9, wherein the step of adhering and bonding said two  
3 panels comprises a UV exposure method or a thermal curing method.

1 12. The method for manufacturing a dual-panel active matrix organic electroluminescent  
2 display as claimed in claim 9, wherein a UV light curable anisotropic conductive  
3 adhesive is used as the conducting and adhesive material, and the step of adhering  
4 and bonding said two panels comprises placing a heater on a surface of said organic  
5 electroluminescent display panel, adding pressure to said heater, and exposing a  
6 surface of said active matrix panel to a UV light.

1 13. The method for manufacturing a dual-panel active matrix organic electroluminescent  
2 display as claimed in claim 9, wherein a metal bump of low melting point is used as  
3 the conducting and adhesive material, and the step of adhering and bonding said two  
4 panels comprises applying hot air on a surface of said organic electroluminescent

display panel and a surface of said active matrix panel.

14. The method for manufacturing a dual-panel active matrix organic electroluminescent display as claimed in claim 9, wherein an anisotropic conductive film is used as the conducting and adhesive material, and the step of adhering and bonding said two panels comprises placing a heater on a surface of said organic electroluminescent display panel, and applying heat and pressure to said heater.

15. The method for manufacturing a dual-panel active matrix organic electroluminescent display as claimed in claim 9, wherein fabricating said organic electroluminescent display panel further comprises the steps of:

(a) preparing a transparent substrate having top and bottom surfaces;

(b) depositing a layer of transparent material on the top surface of said transparent substrate;

(c) depositing a patterned organic electroluminescent film on said layer of transparent material;

(d) depositing a cathode layer on said patterned organic electroluminescent film; and

(e) forming a passivation layer on said cathode layer for protecting said patterned organic electroluminescent film from being damaged by water and oxygen;

wherein an opening is formed on the top of said cathode layer as a contact window to said active matrix panel.

16. The method for manufacturing a dual-panel active matrix organic electroluminescent display as claimed in claim 15, said organic electroluminescent film being deposited by a shadow mask method using organic light-emitting diodes of small molecules.

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- 1 17. The method for manufacturing a dual-panel active matrix organic electroluminescent  
2 display as claimed in claim 15, said organic electroluminescent film being deposited  
3 by an inkjet printing method using organic light-emitting diodes of high molecules.
- 1 18. The method for manufacturing a dual-panel active matrix organic electroluminescent  
2 display as claimed in claim 15, wherein said conducting and adhesive material is  
3 deposited over said passivation layer on said organic electroluminescent display  
4 panel to bond said two panels together with pixel-to-pixel alignment.